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ABSTRACT

Part of a continuing series intended for use by reading professionals interested in understanding and improving the reading of adolescents, this report contains five articles dealing with a variety of subjects. Specific topics discussed in the articles include (1) remedial readers' comprehension during silent and oral reading, (2) recall and intervening mental activities involved in listening to expository information, (3) applied research in content area reading, (4) sex-related variables and mature reading response, and (5) the use of qualitative and quantitative data in answering research questions. (FL)

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RESEARCH ON READING IN SECONDARY SCHOOLS

A Semi-Annual Report

Monograph Number 8

Edited by

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FALL, 1981

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PURCHASE OF MONOGRAPH

This monograph is the eighth in a series of semi-annual reports of research related to reading in the secondary schools. The monograph is supported by the Department of Reading of the University of Arizona for the purpose of disseminating research findings to professionals in reading who are interested in understanding and improving the reading of adolescents.

Issues one through four and issue six of this monograph are available through ERIC; number 1, Ed 117 509, number 2, ED 177 510, number 3, ED 184 052, number 4, ED 191 004, and number 6, ED 203 286. Issue 5 is available through the Department of Reading at a cost of $3.50 per monograph. Issues 7 and 8 are available at a cost of $4.00 each. Checks should be made payable to the Reading Research Monograph and forwarded to the University of Arizona, Tucson, Arizona, 85721.

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SUBMISSION OF MANUSCRIPTS

This monograph series is planned and published as a non-profit enterprise by faculty and doctoral students in the Reading Department at the University of Arizona. Each article submitted is independently reviewed by at least three members of the editorial board. Subsequent issues are planned that will include specific research studies, theoretical papers that emphasize a need for research, and reviews of literature. Articles that deal with any of these areas are being actively solicited if they (1) are of interest to reading professionals on the secondary level, (2) are primarily directed to research, and (3) have not previously been published elsewhere. It is intended that this monograph reflect, not dictate, the trends and interests of reading professionals in secondary education. Please do not hesitate to submit manuscripts which share ideas, research, or experiences that might encourage others to build upon your work and ideas. Send manuscripts by March 15 to be considered for Spring publication.

One unique aspect of this series is that the editorial board is particularly interested in receiving papers from doctoral students and from assistant professors. It is our belief that many of the professionals in these categories do not publish their research findings because of a perceived and existing difficulty of "breaking into the publishing game." We hope to encourage "first-time" authors by providing such an opportunity and encourage such prospective authors to submit papers or questions to the editors.

The response to our effort has been most gratifying. As you may well appreciate, the production and dissemination of a new publication is hardly an easy task. In fact, as we succeed, the task becomes increasingly more complex. Our future success depends upon the degree to which our colleagues join us in generating research and in reporting their findings.

P.L.A.

ACKNOWLEDGEMENTS

A debt of gratitude is owed Dean Robert F. Paulsen, College of Education, for his continued encouragement in the production of this monograph.

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FROM THE EDITOR

About This Issue

As our regular subscribers will note, and new subscribers may wonder about, this monograph is about two months late. We are very sorry that such is the case. Both personal circumstances and circumstances beyond my control have caused this delay. Please accept my apologies. I am especially grateful to the authors of the articles appearing in this monograph, as their patience has certainly been admirable.

A change has occurred in the publication of this monograph. We have added two reviewers to the editorial board, and we extend them a warm welcome. H. Alan Robinson of Hofstra University and Ken L. Dulin of the University of Wisconsin-Madison have graciously agreed to help Drs. Ames and Vaughan and myself in the review process. We hope that their participation as reviewers will help to improve the quality and timeliness of the articles selected for publication.

The contents of this monograph represent secondary reading researchers' wide range of interests and questions. Weisendanger and Birlem raise a time-worn question: silent reading versus oral reading. These authors underscore the point that each activity has its own purpose and that one's instructional goal should be the determining factor.

Aaronson resurrects a concept that hasn't appeared too often in recent literature -- the concept of mental imagery. Her article is thought provoking and might well provide the basis for further investigations in "intervening mental activities."

Bean has selected a few studies to review which relate to certain classroom instructional practices. His article is in response to Patberg's suggestion (Journal of Reading, 1979, 22, pp. 332-336) that secondary teachers and researchers join forces and investigate the strategies we talk about and use in real classrooms. Others have also made this suggestion and this monograph welcomes manuscripts which do that kind of action research.

The Juergens-Ellsworth and Stockseth article is a favorite topic of mine. This article discusses the notion of sex-role-identity and raises some interesting questions regarding adolescents' stereotypic response to literature.

Last, but certainly not least, Heffinger provides an interesting description of how she used both quantitative and qualitative data analysis to answer her research question. Her description may be helpful to others attempting to develop similar research designs.

What's Next

The next monograph, the Ninth, will be mailed by late April. Please send manuscripts as soon as possible as final publication decisions will be made by March 31.

The ninth monograph will include a new feature called "Reflections." All readers of the monograph are invited and encouraged to submit a reflection upon any of the articles which have appeared in past monographs. Your reflections should be brief, perhaps 1 to 3 pages, and should comment upon the quality of the research and/or the importance of the questions asked and the issues raised by the author. Hopefully, "Reflections" will provide a format for dialogue concerning secondary reading research.

Patricia L. Anders

Do High School Remedial Readers Comprehend Better When Reading Silently Or Orally?

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Introduction

While it is generally agreed that a long-range objective for any reading program should be primarily concerned with improved silent reading comprehension, there is little argreement as to the procedures that should be used to achieve this objective or the means to evaluate it. Unfortunately, the practice of round robin oral reading in an effort to measure reading comprehension continues to exist, (Austin & Morrison, 1963, Barton and Wilder, 1964, Farr et al., 1969, Spache, 1969), even though differences between silent and oral reading have been stressed.

Durkin (1978) points out that different processes are involved in silent and oral reading. One obvious difference between oral and silent reading is that children vocalize when reading orally. Additionally, there are also differences which are less obvious. For example, in oral reading children's eye fixation periods are longer and more eye regressions occur.

Goodman (1967) notes that, with the proficient silent reader, graphic input is rarely returned to speech because the reader's focus is always on meaning; hence, s(he) is able to move from print to meaning without pronouncing words. He further suggests that there is such a diversity between the oral and silent reading processes that only silent independent reading should be called reading.

Comprehension may be achieved through reading the material either silently or orally. However, the effectiveness of both these modes has yielded conflicting results. Studies conducted by Collins (1961), Rowell (1976) and Elgart (1978) support the theory that children's comprehension is improved if they read the material orally as opposed to silently. However, a study conducted by Rogers (1937) found no significant difference between groups reading silently as opposed to orally. Swalm (1972) analyzed the effects of oral and silent reading on comprehension according to grade level. Swalm's findings suggest that the level of proficiency of the reader may be a factor in determining whether or not reading silently or orally produces greater gains in comprehension.

To investigate this issue further, a study was conducted to determine the effect of oral reading and silent reading on comprehension. More specifically, adolescents' instructional level was assessed by having them read passages orally before answering comprehension questions. The subjects' instructional level was again assessed by having them read passages silently. Comparison of mean scores revealed that adolescents' comprehension instructional level was significantly higher when reading the material silently as opposed to orally.

Selection of Subjects

The sample used for the study consisted of thirty subjects from a rural area in western New York State, ranging in age from fourteen to fifteen. The students were participating in a summer reading clinic which was designed for adolescents who had an average or higher I.Q., but who needed remediation in reading.

Procedure

All thirty adolescents involved in the clinic participated in the study. The instructional level in comprehension was obtained by having each subject read orally from form A and silently from form B of the Classroom Reading Inventory (1976) authored by N. J. Silvaroli.

Each subject was individually tested by the experimenter. The thirty adolescents were randomly divided into groups A and B. Subjects in group A participated in X treatment first (oral reading) and Y treatment second (silent reading), while subjects in group B participated in Y treatment first and X treatment second. Motivation at the beginning of each passage was done with both forms A and B. The oral reading instructional comprehension level (treatment X) was obtained by having each subject read orally passages obtained from form A of the Classroom Reading Inventory. After each selection, questions were presented orally by the examiner and answered orally by each subject. The silent reading instructional comprehension level (treatment Y) was obtained in a similar manner. The only difference being that the subject read silently the passages taken from form B of the Classroom Reading Inventory. Each subject's instructional comprehension level as a result of both treatments was recorded and then compared. Results were analyzed through the use of a correlated T test. Comparisons of means and standard error of means for both treatments are listed in Table I.

Results

A significant difference at the .001 level was found to exist between the two treatment groups. The mean reading comprehension score for treatment Y was significantly higher than for treatment X. As shown in Table I

the subject's instructional level in comprehension was significantly higher when obtained by having the subject read the material silently instead of orally. The findings of the study revealed that when adolescents are given material to comprehend, their comprehension level would be significantly higher if the material was read silently.

Significance of Findings

The results of this study would seem to indicate that the practice of oral reading when teaching comprehension skills should be reevaluated. One might raise the question as to whether or not oral reading slows down the thought process so as to interfere with comprehension. Reading experts know that more eye fixations take place during the oral reading process. In addition, vocalization takes place during oral reading but not during silent reading. The question arises as to the possibility that the additional eye fixations and vocalization that take place during oral reading but not during silent reading may influence the level of comprehension obtained by the reader.

The results of the study would further emphasize the importance of teachers being aware of the specific reading objectives of each individual lesson before planning the procedure of the lesson. For example, a lesson which has as its objective the teaching of a specific word recognition skill should have a completely different procedure than a lesson that has its objective the teaching of a specific comprehension strategy. When the objective stated is a comprehension skill, all the reading done by the student should be conducted silently. Whereas, if the objective of the lesson is to diagnose or remediate a word recognition skill, then a skills lesson which includes some oral reading might follow. Too frequently,

teachers turn a lesson in which the objective is improvement in comprehension into a decoding lesson by having the student read orally and "sound out" any unfamiliar words. If a comprehension skills lesson is turned into a decoding skills lesson, there is a possibility of teaching a student to improve his decoding skills at the expense of lessening his skills in comprehension.

An additional implication of the study is that a student's instructional reading level in comprehension should only be obtained by having him read silently. Often times teachers will place students in a basal reader or other instructional materials as a result of scores obtained only by oral reading. This study points to the lack of validity of this commonly used practice.

TABLE I

Mean Scores in Reading Comprehension of Students Reading Passages Orally and Silently

Groups	N	Mean Score	Standard Error of Means	T Value
Treatment X (oral reading)	30	4.33	.326	4.747 *
Treatment Y (silent reading)	30	5.43	.351	

* Significant at .001 level

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Recall and Intervening Mental Activities Involved in Listening to Expository Information

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There is a dynamic and intricate interrelationship among mental processes occurring during the act of listening which needs to be explored. To investigate that interrelationship and to discover what the mind is doing while listening, college subjects were tested individually while listening to a lecture. Special apparatus was devised so that subjects could signal the manifestation of intervening mental processes such as imaging and mind wandering which could be reported retrospectively and then analyzed according to a post hoc schema. In addition, recall protocols were analyzed to measure the recognition of the structure and hierarchy of ideas, and the interactive dynamics between listener and the message.

Review of Related Literature

Accuracy of Recall

Because we cannot look into the mind directly, hypotheses about the nature of memory and the variables which affect the level of accuracy have been obtained by an examination of recall protocols. Bartlett (1950), in his seminal study, deliberately used a mystical, and bizarre story, "War of the Ghosts" in order to test the accuracy of recall after different intervals of time. He found that accuracy of recall was the exception and that protocols contained distortions, importations, and rationalizations because of the ambiguities in the story. In addition, there was an increasing tendency towards importations and inventions in "long distance remembering."

Since the advent of Bartlett's study, researchers have been divided into two camps. The first group, the abstractivists, contend that recall disclosure is basically accurate and reproductive in nature, and is a function of such variables as the number of concepts in the text base, degree of redundancy, and level of concreteness or imagery evoked by the passage (Kintsch and Kozminsky, 1977; Meyer, 1975). Gauld and Stephenson (1967) found that the nature of instruction affected the results. Thus, when subjects were instructed to avoid errors and not fill gaps in memory after a reading of the "War of the Ghosts," accuracy ratings improved substantially, which disproved Bartlett's findings. However, in the non-experimental world, such demands for accuracy are not typical.

The second group, the reconstructionists, believe that the level of accuracy is "problematic" because it is affected by intervening variables such as previous experience, the contextual situation, and explicitness of information (Frederiksen, 1975; Marshall and Glock, 1978-79; Spiro, 1975). Spiro (1975) found that the level of accuracy could be predicted by the nature of the stimulus message, task demands, and the level of "cognitive and affective interaction." Thus when material was well organized and neutral in impact, the level of accuracy tended to be greater; conversely, when there was a high degree of affective interaction, the level of accuracy tended to diminish.

Current research seems to be moving towards an analysis of the interaction between subject and the information and is somewhat less concerned with accuracy. Reder (1978) suggests that the level of interaction is reflected by the production of elaborations (idiosyncratic and optional responses including inferences, embellishments, and additions). According

to her view, elaborative behavior helps in the retention of prose and should be encouraged.

Imagery and Memory

During the listening act, the mind is using various cognitive tools to aid in storage, retention, and recall. One very important tool is imagery which has now been resurrected as a legitimate field of inquiry. Until recently, the field of learning was dominated by behavioral psychologists who were more concerned with easily measured stimulus variables in learning and chose to ignore how the learner interacted with the stimulus material. The resurgence of interest in imagery has helped contribute a more dynamic and humanistic approach to learning fostered by the work of Bruner (1964), Piaget and Inhelder (1971), and Paivio (1971). Paivio, who made an impressive empirical and theoretical contribution to the role of imagery and learning, hypothesized that there are two basic and alternative ways of representing information in memory--the verbal and the imaginal which overlap and interact. He also hypothesized that memory increases directly with the number of alternative codes available for retention. Imagery has been used as a variable in discourse recall performance in a number of studies with positive results (Anderson and Hidde, 1971; Johnson, 1974). Steingart and Glock (1979) found that the use of imagery facilitated comprehension and helped generate the production of inferences significantly.

Signalling Intervening Mental Activities

Two researchers used a device to signal the occurrence of intervening mental activities in their research design. Horowitz (1970) instructed her subjects to report on the "contents of their minds" at different tone

signals while viewing a "trauma" film. After completion of the first recall protocol, subjects were then told to review their protocols and to add ". . . all clear instances of imagery, amplifying previous reports if necessary on a separate sheet of paper." Interestingly, reports on the appearance of imagery were doubled after instruction to record imagery. The weakness in this study was that introspective reports were not spontaneously generated. Cohn, Hansel, and Sylvester (1971) devised an innovative technique to measure instances of mind wandering experienced by students during a lecture. In order to record the number of times students became aware that their minds had wandered, they were instructed to push a button which was located at their desks. Equipment was specially designed so that when a student pushed a button, a corresponding light was lit up in an adjoining room. A serious shortcoming of this study was attempting to determine the nature of mind wandering based on external observation.

The limitation of Cohn, Hansel, and Sylvester's pioneering investigation into mind wandering can be credited with providing the author with the inspiration for a different modus operandi, namely the case study approach and the use of retrospection in order to directly examine the dynamics of listening to expository material, including intervening mental activities such as mind wandering and imaging.

The Study

Subjects

The subjects were fifteen paid volunteers attending Queensborough Community College which is a unit of City University. Participants were chosen to reflect the wide spectrum of students in attendance including "late bloomers," career-seekers, members of minority groups, as well as the

academically unprepared who constitute 50 percent of the population. Criteria for acceptance into the study included a demonstrated ability to verbalize about mental processes during a preliminary screening, and the completion or near-completion of a course in psychology.

Instruments and Description of the Testing Room

A taped lecture on the subject of conditioning was the chief instrument employed and was selected from the Sack-Yourman Study Skills Program (College Skills Center, 1971). Only the first side of the cassette lasting fourteen minutes was utilized. The other instruments were:

1. A variation of cloze called Op-In introduced by Pehrsson (1975) and adapted to an auditory experience was used in order to test the accuracy of immediate exact recall in short term memory (STM). Only the first four minutes of the lecture were used and deletions were positioned after every one and one-half sentences.

2. A flash-button device was in operation to allow subjects to signal the manifestation of intervening mental activity occurring in juxtaposition to ideas received during the lecture.

3. An easy-to-score check list of responses (based on the model of idea units) was used which was designed to incorporate the full range of "possible" responses which could be generated if total recall were possible.

4. A test of cue questions was designed to help subjects generate ideas which were stored but not freely recalled.

The testing room was an enclosed partition measuring ten by eleven feet. The furnishings consisted of a very large desk and two chairs; the

windows were covered to block out visual distractions. The special signalling and flashing equipment (two separate pieces) were placed for easy accessibility. Thus, the "signal-push" button was placed within the reach of the subject who was seated flanking the left side of the desk, and the "flash mechanism" was placed in the semi-open right hand drawer of the desk so as to be out of view of the subject.

Procedure

Testing was established as a two stage process. The first stage was set up as a trial run in order to determine the suitability of subjects for learning to integrate the separate tasks of listening and signalling followed by retrospection. Since subjects had to furnish a dual response in terms of recall of subject matter and awareness of intervening mental activity, it was important to train subjects as to when to push the flash-button to signal that intervening mental activity had occurred. Thus, subjects were exposed initially to a trial lecture, then asked to recall the trial lecture, and finally to retrospect about the reason for signalling at specific points during the lecture. Responses were reviewed in terms of content and triggering agent. Intervening mental processes such as mind wandering or thought extensions were defined as "not a flash association of 'pop-in, pop-out' experience, but rather a feeling of "having been away and returned" with cognitive awareness arising only at the very end.

The second stage consisted of the actual test situation using the target message in the following order: (1) Subjects were first exposed to the Listening Op-In test using the first four minutes of the lecture. (2) Subjects then heard the main portion of the lecture lasting ten minutes.

They were reminded that the investigator would be monitoring the appearance of flash signals which would then be mapped onto a verbatim copy of the lecture. (3) At the conclusion of the lecture, subjects were asked to recall. The directions specified:

> "Imagine that your class-mate was absent from a very important lecture that you attended. Write down all you can remember of the main ideas as completely as possible so that you could be of help."

(4) After the completion of the recall protocol, the investigator encouraged each subject to take a brief respite in order to give the investigator time to analyze the recall protocol for areas of omission and gaps in recall. (5) In order to trigger the retrieval of stored ideas not freely produced, subjects were asked open-ended questions based on specific gaps in their recall protocols. (6) Finally, subjects were asked to retrospect about their intervening thoughts. Specific questions were generated from an examination of the investigator's mapped copy of the lecture and were directed towards uncovering the associational stimuli and rationale for attentional departures at the particular context in time. Retrospection was generated by such questions as, "You pressed the push-button at about this sequence in the lecture. What were your thoughts at that time?" Responses were then recorded for immediate analytic purposes.

Retrospective Comments

Case #: Olga

I. Free Retrospection: You pressed the button 4 times. Can you remember what you were thinking of?

---Going off ---Rabbit, learning about it in psychology ---Behaviorist Misbehaves. Funny, I could see the headlines

II. Directed Retrospection

Sentence Cues	Verbatims	Category	Effect on Recall
1) Pavlov delayed the reaction, tried diff. kinds of stimulation. In fact, he even had a little box in his lab	1) I pictured his little laboratory with the dog in the cage on a table. Pavlov was in his lab coat and there is his little swear-word box	Imagery	Good
2) Any kind of behavior that is meaningful to the psychologist is behavior that can be measured	2) Don't remember	mind wandering	Bad
3) that a child can learn to fear anything and also learn not to be afraid of anything	3) I remember that I have a fear of heights on an overpass. I picture myself being afraid of overpasses when cars are below	Personali-zation and imagery	Good
4) What happened to Watson. He is the first to apply in any systematic way the Pavlovian principles to American psychology	4) I was thinking about him applying his principles in advertising. How strange! It just didn't seem right or it would work. Also, I could see the headlines, "Behaviorist Misbehaves!"	Questioning (other) Imagery	Bad Good

Scoring

The actual lecture consisting of 3000 words, was segmented into thirds in order to see the effect of beginning (primacy), ending (recency), and middle units of information on immediate, unaided, and aided recall.

Scoring procedures consisted of the following: (1) Responses to the Listening Op-In test were scored for accuracy of exact recall in STM. In addition, calculations were made of the percentage of exact and semantic transformations (meaning equivalents). (2) The level of unaided recall in LTM was determined by analysis of the recall protocol which was matched against the text model which was an easy-to-score check list of responses incorporating the full range of "possible" responses if total recall were possible. The text model was an adaptation of scoring by idea units which was introduced by Cofer and reported by Meyer (1975). Under this approach, discourse was segmented on two levels--hierarchically as well as quantitatively according to meaningful units of information consisting of a word, phrase, or a clause. The first level consisted of information categorized as major or belonging to the highest order of information and was given a relative weight of five points for a total of twenty-seven. The second level consisted of subordinate ideas, each given as relative weight of one, for a total of 137. Using two judges, the reliability of scoring was established at 89.9 percent with a 95 percent level of confidence. The recall protocol also included non-quantifiable responses called elaborations which could not be scored because they were idiosyncratic. These responses included logical extensions (inferences) and additions which were the importation of novel facts or ideas which could be correct or incorrect. (3) Responses which were given to probe questions were computed in the same way as on unaided recall in order to gauge the percent gain in

information. (4) Retrospective comments about intervening mental processes were recorded verbatim and then analyzed and categorized according to a post hoc schema. Behaviors which enhanced recall were considered to be facilitating and those which disrupted recall were considered to be interfering.

SAMPLE CATEGORIZATION OF RETROSPECTIVE COMMENTS

Imaging the Information

I saw the dog and the way he was harnessed.

I could visualize a robot type situation.

I heard a bang.

I thought of the Charlie Chaplin movie--Modern Times--and his working in the factory and his body getting stuck in all those weird positions.

I imagined Rosalie with all those electrodes.

I was trying to think what it was like in 1913; people riding around on bicycles and others holding parasols.

Mind Wandering

I thought of the Olympic games.

I was distracted by noises.

I kept thinking of my boyfriend.

He was talking very fast. I thought to myself, he had a Boston accent.

I was stretching.

It got boring.

I looked at a design in the wall. I noticed these dents were forming a straight line. I started to drift.

Recalling the Information

I studied a lot about behaviorism in Russian and politics. I was connecting that with previous learning.

I remembered reading about it (Peter and the Rabbit).

I connected what I heard with previous learning.

I heard that axiom before, "Give me any children and I could turn them . . . ."

Flash Association

Communism and Freedom

I thought of my favorite commercial, "I'm Stuck on Band-Aids because Band-Aids are stuck on me."

I thought of "Salivate like Pavlov's Dog (also Imagery).

I thought of the Titanic (also Imagery).

Limitations of the Study

Because of the complexity and speed of mental functioning, there was an error factor in pinpointing the exact moment in which intervening mental processes had occurred. In addition, the production and reporting of imagery was affected by individual idiosyncrasy.

Discussion of Findings

Exact Recall in STM

The mean percent of exact recall was 22 percent of the information. There was general agreement with other studies that exact recall in STM deteriorated rapidly, particularly with middle units, and was replaced by semantic transformations (Jarvella, 1971; Anderson, 1974). However, because of the nature of the test, the ease or difficulty of exact recall

depended on factors such as serial order, concept load, repetition effects, and interference.

Unaided Recall in Long Term Memory

The mean percentage of unaided recall in LTM was 28 percent for the fifteen subjects; the range was 15 to 50 percent. This result compared favorably with other researchers: Meyer and McConkie (1973) found that the mean percentage of recall after hearing a passage was 23 percent; Marshall and Glock found a 24 percent mean recall response for community college students after reading two short passages.

In order to determine if there was a correlation between the recall of concepts (major ideas alone) and rank on unaided recall (composite score of major and subordination ideas) a Spearman Rank Coefficient Correlation was computed. Table 1 ranks each subject according to (1) composite score obtained on major ideas and subordinate details, and (2) major ideas alone. According to the results, a significant correlation was found ($.91$ $p < .01$) indicating that there was a strong relationship between the recognition of the hierarchy of ideas and recall. Johnson (1970) similarly found that the ability to recognize the structure was directly related to the level of recall.

Table 1

Unaided Recall: Composite Score of Major and Subordinate Ideas and Major Ideas Alone

Subject	Rank	Score of Major and Subordinate Ideas	Rank	% of Major Ideas (27)
Leslie	1	50	1	22
Andy	2	48	4	19
Donald	3	38	2	22
Tom	4	37	3	22
Olga	5	34	5	15
Sally	6	32	6	15
Betty	7	25	9	11
Bob	8	24	8	13
Edna	9	23	10	11
Cindy	10	22	11	11
Cathy	11	20	13	7
Dorothy	12	18	7	15
Lenny	13	17	12	11
Ira	14	16	14	9
Roberta	15	16	15	4
		$\bar{x}$ = 28%		$\bar{x}$ = 14%

$r = .91$

$p < .01$

Aided Recall

The increase in aided recall was strongly positive, with a mean gain of 16 percent, but not higher than unaided recall. Although the use of probe questions was a positive force in allowing stored information to surface, there was much individual variation depending on the strength or weakness on unaided recall which determined the amount of information available for later retrieval. This finding contrasted with Marshall and Glock (1978-79) who found that "probe recalls were significantly more

complete than free recalls." However, it is difficult to make comparisons because the passages used by Marshall and Glock were very brief and thus the demands on LTM were very different.

Serial Order

Serial position effects were found in the present study. There was a general tendency for recall to conform to the order of presentation with the greatest recall for the beginning (57 percent), followed by the last section (37 percent), and lastly by the middle (25 percent). These results seemed to be in agreement with those found by other researchers (Deese and Kaufman, 1957; Meyer and McConkie, 1973) and was particularly evident in passages developed sequentially.

Intervening Mental Activities

Intervening mental processes consisted of behaviors which could be facilitating or interfering to information processing. According to a post hoc analysis of responses, the most frequent intervening cognitive behavior which was considered to be facilitating was imagery, produced in response to concrete and vivid aspects of the lecture. Imagery occurred 31 percent of the time and was facilitating 88 percent of the time (table 2). Occasionnally, however, imagery was disruptive particularly when the image assumed a more attractive life of its own. Thus, one subject reported, "I saw different colored lights in front of me that caused a mental block so that I did not recall that part of the lecture." Mind wandering was the next most frequent intervening behavior occurring 21 percent of the time and was interfering in its effect on retention 86 percent of the time, occuring mostly at the more abstract or peripheral aspects of the lecture.

The other less frequent behaviors were: recalling information, flash association, personalizing, processing difficulties, and anticipation. In some cases, classification was difficult because some activities were not "pure" but seemed rather to merge into each other because of the complexity and speed of thought. For example, a quick flash association might be made to a stimulus word and then be diverted off to another mental pathway. Thus, in response to hearing the word "advertising," one subject immediately thought of a commercial "jingle" advertisement and thus wandered to a thought other than that being discussed at the moment.

There has been no reported retrospective study which attempted to analyze the components of intervening mental activities which are exemplified by mind wandering. Cohn, Hansel, and Sylvester's study (1971) focused on the frequency rather than on the nature of mind wandering; however, they suggested that mind wandering could be beneficial or harmful depending on the effect, i.e., whether it was related to "pondering more deeply the lecturer's theme," or "a pull from some other direction." Their speculations seem to have been substantiated in the present investigation.

Table 2

Intervening Activities and their Effect on Recall
(Unaided and Aided)

Activity	Total Frequency Total	Total % of Total (105)	Facilitating Frequency	Facilitating %	Facilitating Frequency	Facilitating %
Imagery	32	31	28	88	4	12
Mind Wandering	22	21	3	14	19	86
Recalling	12	11	10	83	2	17
"other"	10	10	2	20	8	80
Flash Association	8	8	4	50	4	50
Processing Difficulties	8	8	3	37	5	63
Personalizing	8	8	6	75	2	25
Anticipating	3	2	2	--	1	--
Extending	2	1	1	--	1	--
Total	105		59		46	

Imagery as a Cognitive Tool

Montague and Carter (1973) found that concrete passages were easier to recall than abstract and suggested that imagery might play a role in recall. Similarly, in this study, the highest response rate was related to the most concrete aspects, and the lowest was related to the most abstract, specifically summaries and theoretical considerations. Paivio's hypothesis

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(1970), was confirmed that information is coded verbally and imaginally in memory, and that the use of both systems increases the chances for retention. The best recallers used both systems, although one relied exclusively on verbal mediators. Steingart and Glock (1979) interviewed students to investigate strategies used to facilitate recall and found that imagery was identified as the most frequent activity and the most facilitating.

Interactive Dynamics Expressed in Elaborative Behavior

1. The accuracy of recall was affected by interactive behavior between listener and the information, resulting in the production of elaborations. Some subjects freely imported and distorted the information, others were highly inferential, but there was much individual variation depending on the subject, prior experience, and the level of interaction. The greatest number of additions was seven and the largest number of extensions was ten, contributed by the most mature subject, who presumably engaged in a complex range of activities while listening, involving on the one hand, an active reconstruction of a message before it disappears; on the other hand, the mind is also beset by intervening mental activities which enhance or detract from the depth of processing which is occurring. In addition, interactive factors play an important role in the processing of information, resulting frequently in elaborative behavior.

2. The ability to comprehend and recall is complicated by the fragility of exact memory. However, it is not the ability to reproduce exactly heard information which determines the level of comprehension and recall, but rather the ability to reconstruct the message into a semantic counterpart before it disappears, which is crucial. In addition, the level of recall is positively related to the ability to grasp the structure or

hierarchy of concepts which then serve as a triggering mechanism or anchoring force in helping to store and release information clustered about different themes.

3. In general, the mind faces an uphill battle in an effort to recapture and reconstruct what is heard. Community college students were able to recall about one-fourth of the information; with assistance, they were able to recall an additional one-sixth.

4. As revealed during retrospection, because of the speed of thought and fluctuating levels of attention, the mind functions like a three-ringed circus in attempts to process, store, and retrieve the flow of information. In addition to conceptualizing, some of the intervening activities include: associating, anticipating, extending, imaging, recalling, personalizing, mind wandering, and processing what is heard. Imagery appears to be a frequent dynamic of thought and when used appropriately, is probably an important tool in cognition and recall. Conversely, mind wandering, which occurs in response to the nature of the information, seems to be a temporary disruptor of thought because of the effect on the processing of information.

Summary

To investigate the interrelationship among mental processes occurring during the act of listening, fifteen college subjects were tested individually while listening to a lecture. Special apparatus was devised so that subjects could signal the manifestations of intervening mental processes which could be reported retrospectively and then analyzed according to a post hoc schema. In addition, recall protocols were analyzed for recognition of the structure and hierarchy of ideas. According to the results,

the mean for the unaided recall of the lecture was 28 percent of the information and there was a highly significant correlation (.91 $p < .01$) between rank on recall and the ability to recognize major ideas. Through retrospection, the following behaviors were found to predominate and to have either a facilitating or interfering effect on retention: (1) imagery, reported one-third of the time, was largely facilitating; and (2) mind wandering, manifested one-fifth of the time, was mainly deleterious. In conclusion, the mind faces an uphill battle in an attempt to recapture and reconstruct what is heard. In addition, the mind is engaged in a complex range of cognitive activities while listening, including intervening mental activities which enhance or detract from the depth of processing and retention.

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A Brief Review of Applied Research in the Content Areas

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A concerted effort to investigate many of our most cherished comprehension strategies represents a relatively recent phenomenon in the reading profession. In the mid-1970's we were still preoccupied with such timeless secondary research topics as speed reading. As Herber (1979, p. 1) suggests, it appears that in the 1980's we are just "turning the corner" in our exploration of the reading process in content classrooms.

In a position paper evaluating research in content area reading, Patberg (1979) noted that a wide array of comprehension strategies are promoted in journals and methods texts, yet there is an absence of empirical support for these strategies. Patberg recommended that researchers conduct a continuing series of short and long term validation studies to compare different strategies in terms of their relative effectiveness. More importantly, she suggested that teams of content teachers and university professors collaborate in this process.

The brief review that follows centers on four classroom studies of popular comprehension strategies with an analysis of their common features and recommendations for future research. These four studies exemplify a promising collaborative approach to applied comprehension research in content area classrooms.

Applied Research

Listening Guides

In a descriptive study, Thomas and Cummings (1978) predicted that a modified version of Castallo's (1976) listening guide would positively affect students' learning behaviors during the oral presentation of a history lesson. The listening guide they devised consisted of a partially completed topical outline with headings and subheadings highlighting main ideas and supporting details.

Three hundred and fifty students in five tenth and eleventh grade history sections were instructed to take notes on the guide and ask questions during the lecture in preparation for a subsequent test. The lecture portion of the study encompassed three class periods followed by two teacher-made tests, one essay and the other a combination of true-false and multiple-choice questions.

Thomas and Cummings observed that students seemed to sustain attention more than in previous lecture activities conducted without the benefit of guide material. In addition, students seemed to engage in more notetaking, increased questioning, and greater collaborative discussion than in previous instances.

Although students' performance on the multiple-choice test proved to be equivalent to, but not better than on similar tests covering previous units, their essay tests displayed substantial improvement. In both form and content, students' essays were concise, substantive, and demonstrated a grasp of the technical vocabulary introduced in the lecture.

The authors concluded that the modified listening guide was generally effective. They recommended that additional experimental studies involving a control group be undertaken to evaluate the retrospective findings of this preliminary investigation.

Advance Organizers

In a recent experiment, Karahalios, Tonjes, and Towner (1979) predicted that students would achieve significantly better recall of science content as a result of a pre-reading advance organizer.

Seventy-six seventh grade students were randomly assigned by class to one of three treatment groups. Students in the first group simply read the science chapter concerning the measurement of mass and length. In group two, students skimmed the chapter noting headings before reading. Group three students read the advance organizer, described as an explanatory statement, before reading the chapter.

The mean scores for groups one, two, and three on a multiple-choice test given at the end of the week were 22, 24, and 28 respectively. Based on an analysis of variance, these scores were found to be significantly different at the .01 level. A Scheffe test revealed a significant difference in the mean scores achieved by groups one and three. This finding led the authors to conclude that the amount of pre-reading instruction influenced students' test performance. They recommended that future studies control for students' prior knowledge of the topic under consideration.

An additional limitation not mentioned by Karahalios et al. was their failure to provide an adequate description of how their advance organizer was constructed and what information it contained. One of the universal

limitations of existing advance organizer research hinges on the absence of a mutually agreed upon, operational definition of advance organizer construction (Clark and Bean, Note 1). For example, it might be worthwhile to run a series of advance organizer studies employing organizers constructed from the main idea propositions in a text. In this way, our results across studies might be less equivocal than they are at present.

Guided Reading Procedure

Bean and Pardi (1979) explored the effect of a modified Guided Reading Procedure (Manzo, 1975) on students' short and long-term comprehension in cultural geography. A pre-reading survey step was added to the procedure in order to accommodate a sample of students who were corrective readers enrolled in a Title I program.

Thirty-nine students in two seventh grade cultural geography classes were randomly assigned by sections to either a guided reading condition or control condition. The reading assignment involved half of a text chapter on ancient Greece and the control group simply read the selection.

Two dependent measures were used to assess students' comprehension of the test selection. On the short-term quiz immediately following the reading assignment, students in the guided reading group achieved average scores of 84 percent while the control group mean was 68 percent. Based on a t-test of the difference between means, this proved to be significant at the .01 level. The unannounced long-term quiz administered one week later resulted in a mean score of 90 percent for the guided reading group and 82 percent for the control group. This proved to be nonsignificant at the conventional .05 levels; however, the means were significantly different at

the .10 level. Bean and Pardi suggested that although the guided reading strategy facilitated students' short term comprehension, subsequent learning activities (e.g. films, discussions, etc.) for both groups may have masked its long-term effects.

A replication of this experiment was conducted using the remaining half of the text chapter. The previous control group served as the experimental group and the results were essentially the same. However, the long-term quiz results were significantly different at the .001 level this time. Manzo (1975) noted that once students have been exposed to the unannounced long-term quiz, they develop a mind-set to actively retain information during subsequent guided reading activities. This factor, in addition to others, may have contributed to students' long-term retention of the chapter concepts. In any case, Bean and Pardi concluded that the modified guided reading procedure was effective in guiding corrective readers' short and long-term comprehension of content material.

Directed Reading-Thinking Activity

Recently, Lovelace and McKnight (1980) examined the effect of a modified Directed Reading-Thinking Activity (Sheperd, 1978) on university students' comprehension of calculus problems. Their approach involved a combination of peer tutoring in heterogeneous groups using adjunct vocabulary and study guide material designed to model the problem-solving process. A control group simply listened to an instructor lecture and they worked on the calculus problems independently.

Thirty-seven university sophomores were randomly assigned by section to the experimental or control conditions. Their performance on four

semester exams in calculus and a department-wide final exam were used to evaluate the effectiveness of the experimental approach.

While there were no significant differences on the four semester exams, the two groups displayed significantly different mean scores on the departmental exam. The authors concluded that guided instruction influenced long-term problem-solving performance in calculus.

In summary, one descriptive study and three experimental studies were reviewed. Positive learning effects were found for the comprehension strategies explored in each of these studies, i.e.: Listening Guides (Thomas and Cummings, 1978); Advance Organizers (Karahalios, Tonjes, and Towner, 1979); Guided Reading Procedure (Bean and Pardi, 1979); Directed Reading-Thinking Activity (Lovelace and McKnight, 1980).

Before plunging headlong into the time-worn recommendation for additional research to validate these findings, two key questions warrant consideration. First, is it the strategies that facilitated learning in these studies (note that they are all different, at least in name), or are some underlying features possessed by all of them? And secondly, what do these studies suggest about modifications and refinements for future applied research?

Discussion

Psycholinguistic Features

An analysis of each of these comprehension strategies reveals that they all share some common, psycholinguistic features that make them "tick." Each approach attempts to activate and build on students' prior knowledge of a content topic. Reading comprehension is treated as an interactive process embracing both the reader's schema for a topic and the

author's intended message (Bransford, 1979). This factor alone is likely to encourage at least short-term comprehension.

In addition to developing prior knowledge of a topic, the collaborative discussion stage integral to listening guides, the guided reading procedure, and the directed reading-thinking activity increases active time on task and fosters elaborative processing of information. Basic research in memory confirms the crucial role of deep processing of information for long-term retention (Bransford, 1979). Finally, the outlining step in both the listening guide and guided reading procedure ensures that content information is arranged in a retrievable hierarchy. This organization framework aids the retrieval process when the test format contains retrieval cues that resemble the way in which the information was initially organized (Bransford, 1979).

Thus the three psycholinguistic features of prior knowledge, deep processing, and hierarchical organization seem to play a major role in the success of these strategies. And, since most of our comprehension strategies are essentially armchair inventions based largely on intuition, there is no reason not to modify them where they fail to reflect well-established psycholinguistic features (e.g. the Guided Reading Procedure lacks a pre-reading step). Moreover, future studies might profit from an analysis of findings that acknowledges information culled from basic research in psycholinguistics.

Future Studies

The prevailing use of experimental designs in applied research, while attractive in many ways, tends to submerge some of the ongoing learning behaviors that may well hold the key to understanding why a particular strategy worked or failed. Qualitative aspects of human interaction have a way of getting lost in quantitative analyses. Indeed, one of the most striking features of the Thomas and Cummings (1978) study is the attempt to describe, albeit retrospectively, students' learning behaviors during the history lecture. A more refined version of this approach, involving videotaped sessions and a system for charting the quality of collaborative discussions would be a valuable addition to an experimental design. In this way, a baseline upon which to make future comparisons might be formed.

In summary, future applied studies need to take into account the psycholinguistic insights achieved by basic research in the interpretation of findings. Finally, studies that combine the features of descriptive and experimental designs hold much promise for a comprehensive understanding of the learning process in content classrooms.

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And Did He Say It, or Did She? Selected Gender-Related Variables and Mature Reading Response

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Reading researchers regularly address questions related to the reading process and cognition; however, non-cognitive, affective factors also relate to the reading process. The relationship of gender-related variables and reader response is one example of these non-cognitive variables. One gender-related variable of interest here is the concept of sex-role identity.

This paper briefly reviews the psychological notion of "sex-role identity." Following that discussion is the review of three studies investigating aspects of sex-role identity and the reading process. Finally, a study is reported; the results of this study have implications for both curriculum development and further research.

Sex-Role Identity

In order to discuss sexism and its relationship to reader response, it is first necessary to discuss the concepts of masculine, feminine, and androgynous characteristics. Concepts of what it means to be "feminine" or "masculine" are based on how individuals respond to social influences. Some researchers have attempted to identify those personality traits that society distinguishes as "masculine" or "feminine" characteristics. Terman and Miles (1936) summarized their findings as follows:

> From whatever angle we have examined them the males included in the standardization groups evinced a distinctive interest in exploit and adventure, in outdoor and physically strenuous occupations, in machinery and tools, in science, physical phenomena and inventions; and, from rather occasional evidence, in business and commerce. On the other hand, the females of our groups evinced a distinctive interest in domestic affairs and in aesthetic and indoor occupations, and occupations more directly ministrative, particularly to the young, the helpless, the distressed. Supporting and supplementing these are the more subjective differences—those in emotional dispositions and direction. The males directly or indirectly manifest the greater self-assertion and aggressiveness; they express more hardihood and fearlessness, and more roughness of manners, language and sentiments. The females express themselves as more compassionate and sympathetic, more timid, more fastidious and aesthetically sensitive, more emotional in general (or at least more expressive of the four emotions considered), severer moralists, yet admit in themselves more weakness in emotional control and (less noticeably) in physique.

These characteristics came to be perceived as desireable traits which "normal" males and females would develop. In other words, it would be expected that "normal" females would encompass these feminine characteristics and "normal" males would encompass these masculine characteristics, and that they would do so automatically.

Tyler (1965), in a discussion of the historical considerations of differential psychology, tells us that researchers began to question the "automatic" developmental process of male-female personality characteristics. He theorized that personality characteristics previously identified as feminine or masculine were not inherently related to one gender or another but were characteristics acquired as a result of a developmental process influenced by society. His work and the work of others led to the concept of sex-role identity.

Since 1961, several researchers and theorists, incuding Bem (1974) and Broverman (1972), have questioned the effects of sex-role identification of males and females with the traditional concepts of "masculine" and "femi-

nine." They have also questioned the appropriateness of those effects. Bem has suggested that in today's society, traditional sex-role identification is not only inappropriate, but is a severe handicapping element which limits a person's flexibility.

This point of view has led some researchers to a new way of thinking about sex-role identity; as a result, the term androgyny has been introduced. To have androgynous sex-role identification is to combine characteristics of male and female into one personality, each complimenting the other. Bem has developed a sex-role scale to measure the degree to which an individual is "masculine," "feminine," or "androgynous" in personality qualities. She uses characteristics such as "self-reliant, "independent," and "aggressive" for examples of masculinity, "yielding," "affectionate," and "gentle" for feminity and "theatrical," "friendly," and "happy" as examples of androgynous characteristics. The following investigations suggest the degree to which mature readers respond to what is read in traditionally "feminine," "masculine," or "androgynous" patterns of sex-role identification.

Reader Response to Sex-Role Identity

Anders and Dulin (1976), investigated the relationship between male and female high school students' sex-role identity and their reading interest. Subjects responded to the "BEM Inventory" and a Reading Interest Questionnaire which presented fifteen book titles written to be extremely "masculine" in nature and fifteen book titles written to be extremely "feminine" in nature. They found that boys showed a statistically significant preference for books with titles of a stereotypic-masculine nature, and that girls showed a statistically significant preference for

books with titles of stereotypic-feminine nature. Those students who were characterized as androgynous by the BEM scale showed no statistically significant difference in their preferences than stereotypical boys and girls. In this study, students clearly followed the traditional sex-role identification.

Another study (Anders and Dulin, 1977), asked college-age readers to respond to ten simulated book annotations with the annotations presented in alternated sex-of-protagonist versions. The overall responses showed the female subjects rating the stereotypic-feminine stories significantly higher in preference than did the male subjects, regardless of the sex of the protagonists in the annotated versions. Again, in this study, the responses of the androgynous and non-androgynous readers showed no significant difference. Though it may be concluded that the BEM Scale is not an effective instrument of predictability of reader response, or that students are not aware enough of their characteristics or preferences to respond effectively to the scale, the study does show strong feminine orientation by females.

Gabriel (1975) assessed reader response to author credibility based on sex stereotypes. Subjects in her study responded to ten articles in one of two forms of a researcher-developed test. Each form of the test contained the same ten articles, but the author's sex of each article was different in form one than in form two; that is, if an article was said to be written by a male in form one, it was said to be written by a female in form two. Students were asked to rate the articles on the basis of: 1) how logical, 2) how clear, and 3) how valuable it was. The male subjects rated higher all articles authored by males regardless of topic, while females rated higher articles written by females discussing traditionally female topics.

Women also rated the traditionally male topics higher when written by a man. However, while the ratings of the male students were not statistically significant, the ratings of the female students were.

From the Research to the Practical

The review of these three studies indicates that students are responding to what they read in stereotypical ways. It seems that whether "he says it or she does," does indeed make a difference. The question then becomes, "What is the implication for those of us who are involved in the field of reading?"

To examine this issue, course contents of several high school English departments as well as the Wisconsin State Curriculum Guide for Language Arts were reviewed. A list of "required readings" of novels and plays most commonly used in American Literature was compiled. American Literature courses were selected, as those are generally required of all students in high school. The books were categorized as to sex of author, sex of major characters, and personality traits of those characters.

Results (see Table One) reveal that thirteen of the 15 required books are written by men, all but six of the major characters are men with traditionally "masculine" qualities, and the plot centers around the male characters, with the moral or message being developed through the actions of men. Moreover, many of the women in the required books are not "positive characters" serving as "positive" models for today's society. This is not to say that the literature being used currently has no value, or is of poor quality; it is merely a comment on the stereotypical sex-role identification found there.

Conclusions

Conclusions made from this review of high school literature, as well as conclusions drawn from the research, suggest students are identifying strongly with stereotypic sex roles. If that is so, and if we as educators wish to affect some change regarding stereo-typical responses to reading materials, perhaps we should review "required reading" selections and supplement them with materials that provide other than stereotypic models, thus creating a reasonable balance.

It is also strongly suggested that there is a need for research to see if selections which provide a reasonable balance of male to female authors, male-female main characters, more androgynous and less stereotypical characters would affect the reader's response.

A final suggested implication for teachers is that there is a need for instruction in critical reading so that students will be able to read more analytically, make judgments based on facts, and learn to evaluate written material based on its quality rather than responding on the basis of sex-bias.

Table 1

Books On Required Reading Lists For Some High School American Literature Courses

Book Title	Author	Main Character(s)
Adventures of Huckleberry Finn	M. Twain	Tom Sawyer, Huck Finn
Black Boy	R. Wright	R. Wright
Catcher in the Rye	J. D. Salinger	Caulfield
Eden Express	M. Vonnegut	M. Vonnegut
Ethan Fromme	E. Wharton*	Ethan Fromme, Zeene, Mattie*
Easy Rider	Fonda, Hopper, Southern	Wyatt, Billy, George
I Never Promised You a Rose Garden	H. Green	Deborah*
Inherit the Wind	Lawrence, Lee	Brady, Drummond
Of Mice and Men	J. Steinbeck	George, Lennie
Old Man and the Sea	E. Hemingway	the old man
One Flew Over the Cuckoo's Nest	K. Kesey	Big Nurse*, McMurphy
Red Badge of Courage	S. Crane	Henry
Scarlett Letter	N. Hawthorne	Hester Prynne*, Dimsdale, Chillingsworth
Shane	J. Schaefer	Shane, Joe, Bob, Marion*
To Kill a Mockingbird	H. Lee*	Atticus, Scout*

* female author

* female character

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The Qualitative Elucidates The Quantitative: How Ethnographic Data Add Necessary Focus To Experimental Research Findings

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A major question facing the profession today is whether experimental research designs yield the only real truth in reading. Presented here is a quasi-experimental research study carried out in a junior high classroom over an entire academic year in which extensive quantitative data were gathered and statistically analyzed. The findings and their implications, however, did not come into focus until the qualitative data accumulated systematically throughout the study were evaluated. It is the purpose of this article to describe how a naturalistic research paridigm worked concomitantly with the quasi-experimental design and to show the value of data acquired in this way. The investigation, its theoretical and conceptual rationale, the methodology, findings, and implications are described following.

Rationale for the Investigation

It is widely accepted practice to utilize simplified, below grade-level textual materials with junior high school students who read two or more years below their present level of grade placement. In the literature, however, it has been contended that perhaps reading materials have become too easy (Maxwell 1978), and that low vocabulary, high-interest materials may, by definition, limit potential student progress (Miller 1979). Additionally, the utilization of simplified materials could have a negative impact on the self-image of the child and his/her attitude toward reading.

Throughout her public school teaching career, this writer has utilized simplified materials extensively and has found that many so-called high-interest stories are not as interesting as the stories in the grade-level texts, that the easier stories do not seem to have the appeal nor the emotional attraction of the stories traditionally read by average eighth graders. A second disadvantage of the utilization of simplified materials is that the students know these materials are for people who do not read well. Deficient readers are aware of their academic stature by the time they reach the eighth grade (Brookover 1965; Kifer 1975), and use of easy to read materials constitutes blatent reinforcement of the poor reader's evaluation of himself as a poor reader. In such a self-defeating environment, behavior problems tend to increase, and nobody's reading improves. Thirdly, when problem readers are issued simplified texts, few if any efforts may be made to move beyond the confines of those texts (Chall 1956; Strang 1965) and little encouragement may be given to seek out more sophisticated literature. Rather than helping the student, simplified materials may ensure that he remains a poor reader, a discipline problem, or both.

Frustrated by an awareness of the excellent yet supposedly inaccessible stories in more difficult texts and prompted by recent hints in the literature that other practitioners are less happy with low-vocabulary high-interest materials that have inundated the curricular market, this writer designed a research study to test whether these materials are, in fact, as helpful to students as they are purported to be.

The Research Design

Briefly, seventy-three deficient and problem readers in the eighth grade at a mid-western junior high were given simplified materials to read.

In January of the academic year 1978-79, two groups of experimental students began to use more difficult materials and continued to use them until the end of the investigation. The control group utilized simplified materials until the study ended in May of 1979. Stories read by all three groups met interest-preference criteria of adolescents, were presented using the directed reading lesson approach (Page 1974), and the same teacher (also the researcher) taught every group.

The research was of a pretest-post-test quasi-experimental design, and, therefore, much quantitative data were amassed and analyzed. As in any study involving human beings in a naturalistic setting, though, quantitative data alone cannot begin to tell the complete story of what took place (Rosenthal 1966; Kerlinger 1973; Mehan and Wood 1975; Fienberg 1978; Stake 1978; H. Walcott). In fact, such data, in isolation, may provide a misleading or totally inaccurate representation of reality. It is therefore necessary to draw upon the qualitative data available to provide the entire picture.

The Ethnographic Methodology

Careful attention was given in this investigation methodically to collect qualitative data. The researcher acquainted herself with the literature on case- and field-study methodologies in an effort to be as prepared as possible to collect the qualitative data competently (Mehan and Wood 1975; Smith 1977; Flanders 1970; Fienberg 1977; Stake 1978). Those data took the form of first, a daily journal of all procedures followed during the investigation. This journal, kept by the teacher/researcher, included such documentation as classroom behavior, student teacher, student-student interactions, and the reactions of students to the reading

assignments. The researcher maintained a written account of pupil involvement with the various activities for each story and determined and recorded how well each group worked on each assignment. The journal also included observations and anecdotal records as they applied to the investigation. Notes were made in a looseleaf notebook subdivided by class, at the end of each period and while students were working.

A second method of instructional documentation was the tape recording of the presentation of below grade-level stories and more difficult materials at two specific times during the investigation. Tapes were transcribed and notes added to the journal entries for each class. Third, instruction was documented by outside observers on two separate dates (February and May). These observers, a reading diagnostician and a reading program coordinator, were skilled in noting student reading behavior and teacher intervention techniques. Detailed notes were obtained regarding such things as pupil interest in the reading material, time on task, pupil reaction to the difficulty level of the material, and teacher reaction to student reaction. In order to minimize expectancy effects on the part of each observer, neither was given any information about the behavior, level of cooperation or reading skill level of any group.

Impact of the Qualitative Data

The qualitative data were viewed as a starting point only, a means by which the groups might be statistically described and compared. Empirical evidence revealed no significant differences between groups using grade-level texts and the group using below level texts either before or following the experimental intervention. Based on the quantitative findings alone, it could not be concluded that simplified texts are better than

grade-level texts or vice-versa. Conclusive support for the contention that problem and deficient readers be challenged by more difficult materials rather than indulged continuously by easier ones was to be found in the qualitative data that were gathered during this investigation. Review of anecdotal records, observer notes, and cassette tape recordings of classroom instructional interaction by the researcher, the two observers, university professors and the researcher's university classmates, allowed certain issues and recurring themes to emerge that might never have been revealed by purely statistical evaluation of the qualitative data.

Samples From the Ethnographic Data

Specific observations from which conclusions were drawn and interpretation of the statistical data modified follow:

A. Regarding Classroom Discipline: E_2 was much more cooperative, docile, and generally better behaved than either Group E_1 or the Control Group. No record appeared in the journal of their being uncooperative until after the Winter holiday recess. Groups E_1 and C, on the other hand, were prone to more disruptive types of behavior, examples of which follow:

(1) talking excessively, even when quiet was requested;

(2) poking one another with various objects;

(3) providing obscene allusions to comprehension questions;

(4) destroying posters with flying paper clips; general lack of respect for the classroom and its contents;

(5) borrowing or stealing materials from classmates;

(6) ripping and scribbling on each other's papers;

(7) swearing at one another; name calling;

(8) constant power struggle between students and teacher;

(9) being extremely critical of one another; many cruel put-downs;

(10) a drop in grades usually accompanied by inadequate self-discipline;

(11) difficulty in remaining seated; many "wanderers".

The point is that, inappropriate, disruptive classroom behavior interfered with reading instruction and acquisition and refinement of reading skills. Research by Stallings (1978) indicates that off-task behavior and socializing during class are negatively correlated with reading achievement ($r = -.52$). Considering the behavior manifested by these students, lack of significant growth in reading should not be surprising and cannot be blamed on any one mode of reading instruction.

B. Regarding Student Awareness of Textbook Readability Level: Within this particular school, students were clearly aware of the kinds of materials used by other students at the same grade placement level, and the students in low reading classes expressed a desire to read the more difficult materials. They seemed to conclude that, if they were using materials different from the majority of students, they must be stupid. Such feelings engendered by textbook assignment and noted in the journal, could surely have contaminated the reading attitude and self-concept data. Without the qualitative data, the no-growth pattern would have been difficult to explain.

C. Regarding the Structure and Consistency of Instructional Method: Journal records indicate that the more structure and consistency employed in reading instruction, the more comfortable the students tended to be with the reading task. If ever the pattern of the directed reading lesson were altered (as it was on one occasion, just to see what would happen), student

responses varied from groans and disgusted sighs to a summarial "That stinks!" The empirical evidence would have us believe that instructional method made no difference; the qualitative data soundly support the directed reading lesson approach.

D. Regarding the Value of High-Interest Material: The Control Group provided the convincing evidence that students can indeed read and want to read beyond their predicted reading level if the material is highly interesting. At the conclusion of the study, when they were allowed to read some of the grade level stories that their classmates in the experimental groups had read, the resounding reply was, "Why don't we get to read more stuff like this?" Ethnographic observations such as this corroborated substantially the value of high-interest material, a variable difficult to measure statistically.

E. Reading Contaminated Data: It was necessary to pull the reading comprehension self-concept, and reading attitude scores of certain pupils. Observations revealed that one reading test was completed in such a way that the answers chosen, when read in sequence, produced obscene allusions. Another student answered the first ten questions of the self-concept measure by summarily encircling the "no" responses with one large cricle down the page. One reading attitude measure was decorated with illustrations of stick figures labeled "Teacher" being dive-bombed by an airplane, tied to a post and being shot, another of a stick figure with a hockey stick, hitting a puck labeled, "Teacher", and finally, a bi-plane firing shots at and dropping bombs on a stick-figure teacher. Had scores from these papers been included in the statistical analyses, class mean scores would have been diluted and lowered, irrepresentative of real classwide ability and feeling.

The qualitative data, then, yielded the following impressions:

(1) that behavior may interfere with classroom reading instruction;

(2) that these deficient readers were aware of the materials their grade-level classmates were using, expressed a desire to read those more difficult materials, and concluded that they were "dumb" if they were not allowed to do so;

(3) that structure and consistency of instructional method, providing the vocabulary and comprehension questions prior to the reading of a selection and providing audio reinforcement of the printed text were instructional strategies that were particularly effective in this research;

(4) that interest was a vital criterion in the selection of reading materials for these students and allowed them to transcend the difficulty level of their reading material.

Recommendations for Future Research

A data-collection strategy central to this research, then, was naturalistic observation, a sort of micro-ethnographic stance, which is becoming more and more accepted as a valid and useful tactic for obtaining information that might be lost or camouflaged by exclusively quantitative data. The accumulation of naturalistic data within the quasi-experimental research paradigm provided an opportunity to get close to some of the important practical and theoretical problems unique to our understanding of the problem reader and the types of materials he is asked to read. An alliance between naturalistic and empirical research designs for studies carried out within the school setting seems more advantageous than an either/or approach. Reporting ethnographic data, which by nature are relatively free of statistical encumbrances, may make reports of reading

research more accessible to and understandable to classroom teachers. As a result, practitioners may be more likely to turn to the literature for help in solving instructional problems.

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